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Abstract

In his book *Ignorance*, Peter Unger puts forward scenarios meant to illustrate the skeptical view of knowledge and why it is wrong to be certain. In my paper I will examine three sorts of these examples using tools of quantitative analysis: the Ink Bottle, the Voice, and the Scientist, taking each of these to be a typical example of a skeptical scenario. After presenting possible skeptical objections to this sort of analysis, I end by concluding that methods of quantitative analysis stand up to the sort of skepticism that Unger provides and that under most quantitative analysis provides us with a better tool for understanding skeptical scenarios than the skeptic's dismissal of the possibility of knowledge.

Introduction

In his book *Ignorance*, Peter Unger argues for philosophical skepticism. His argument centers around the belief that knowledge implies certainty and that certainty is the same thing is dogmatism – and that it is wrong for anyone to be dogmatic regarding their knowledge. Arguing this, he brings to light several examples where he thinks that we would not be able to claim certainty. I will examine his examples of Malcom's Ink Bottle and that of a Voice telling us we are in a false world through probabilistic reasoning and examine the skeptical critique of this analysis. Ultimately, I conclude that rather than lead us into a skeptical worldview, these examples show that skeptical scenarios can be examined by quantitative analysis in a manner that amounts to knowledge of the world as it exists. In this article, when I say 'skeptic' I will be specifically talking about Unger's skepticism, although the point may reach more broadly than that.

Before the examination of these examples I would like to ensure that the reader understands their importance for Unger's skepticism. Unger's argument for skepticism regarding knowledge is decidedly normative, holding that if one is certain of a proposition, one is not at all open to the prospect of any new evidence against the

proposition.[1] Unger also holds that we regard knowledge in terms of certainty, arguing that there is no difference between the statements "S knows P" and "S is certain of P." Unger thinks that to be closed to new evidence is to be dogmatic and that it is wrong to be unwilling to accept new evidence regarding a proposition. As such, Unger believes that it is wrong for any person to believe that they have knowledge. Given that these are the key features of his argument, one might wonder what importance, if any, examples such as the Ink Bottle have for Unger or if a quantitative analysis of the examples are minor point which does not address the skeptic.

I argue that Unger's examples are extremely important for his arguments. Unger tells us that any knowledge we have is suspect and provides us with his examples so that we might imagine circumstances where we would have to admit to a lack of certainty regarding our knowledge of the world around us. If there were no imaginable circumstance where the skeptical hypothesis might be shown to be true, it could be inconceivable as a hypothesis- as Putnam claims in his article "Brains in Vats." As such, Unger is attempting to illustrate that there are circumstances in which we would re-evaluate our knowledge of the world so drastically that we cannot claim any knowledge following such scenarios. Moreover, because no experience we could have is capable of demonstrating that we will never find ourselves in a skeptical scenario regarding any particular item of knowledge, we cannot – even prior to the experience of such a scenario – be *certain* of anything. As we cannot have certainty, it follows that we cannot have knowledge. Unger's examples are meant to clearly demonstrate this to the reader and so are vitally important to his skepticism.

The Ink Bottle

Unger's example of the ink bottle is meant to illustrate that even with a small level of uncertainty, we cannot claim to have knowledge.[2] Since one cannot be certain that an ink bottle is not a deadly chemical weapon, no matter how unlikely it is, one cannot make a knowledge claim regarding other phenomenon which are uncertain, no matter how unlikely it is. To examine this claim, we should attempt to discern what, if anything, can be precisely known about an uncertain proposition. One such tool for probabilistic reasoning is Bayes' Theorem. Bayes' Theorem tells us that we may determine the likelihood of a proposition by multiplying its anterior and posterior probabilities, and dividing these by all instances under consideration. To examine this specific question, let us assume that the ink well in front of me is a 2 ounce bottle. If it were a deadly chemical weapon from a government agency, it would have to have come from the government's supply of chemical weapons. This supply first came into

[1] Unger, Peter. Ignorance. (Oxford University Press, 1975) 121.

[2] Unger, 125.

being with stockpiles in World War I and has consisted of 31,100 metric tones of chemical weapons, 75% of which have been destroyed as of 2010. As far as records show, none of this stockpile has ever ended up in an ink bottle.[3] Still, let us say that there is one potential instance of this in a 94 year period, for the sake of argument. The odds of a given instance being that instance (the posterior probability) given the destroyed instances (which cannot end up in ink bottles) is 1.37*10^-9. Let us assume that the ink bottle appears to be from a company that engages in six-sigma industry-standard manufacturing practices, so 99.99933% of what they produce is properly sold as ink, giving the "ink" postulate a probability of .9999933.[4] We will assume that all ink bottles distributed by a given company are under consideration, with the company in question being identifiable merely by looking at the ink bottle in question. Running those numbers through the theorem, we find that the likelihood of the proposition regarding ink bottles from a given company over a 94 year period to be 1.36*10^-9, or around 1 in a trillion. Given the current rate of destruction for chemical weapons in the United States (45% in 2007, 75% in 2010) we can expect the stockpile to exist for roughly the next 5-10 years at the outside. The probability of one of these years being the year some of these weapons get into an inkwell is then 14.55-7.27*10^-10, meaning that the odds of this happening even once among all instances is somewhere between 1 to 6-13 trillion against, depending on how fast the stockpile is disposed of.

There is one problem with the above calculation: I assumed one instance of such an ink bottle existing while this has never been reported. Because I assumed an instance where none was present, the relative odds of the event occurring could be less than one instance, giving us a posterior probability of <1.37*10^-9. As I find there to be nothing logically necessary about an inkwell not being a secret chemical weapon, I will also assume that it is higher than zero. This means that the odds of this event occurring to anyone might be as low as 1 to 6 trillion against but will be no better.

Objections to the Probability

Unger is likely to challenge this use of probability on several grounds. First, he won't concede that the prior cases are known. Second, he won't concede that the mathematics is known. Finally, even if the prior cases and the mathematics were known, he would object to the probability as a knowledge claim. Unger would likely concede that this methodology manages to be non-dogmatic as it updates on the evidence at hand: namely, if the evidence showed the world to be another way, we would think otherwise.

[3] US Army Chemical Materials Agency Web Page. (Chemical Materials Agency. December 6th 2010. US Army. December 15th, 2010) http://www.cma.army.mil/.

[4] Figures were based on those of the Lyson Ink Company (www.lyson.com) but the example works for a given ink-production company of relative size.

To address the question of whether or not the prior instances can be considered a 'knowledge claim' we must first address how we are constraining the problem within the scenario proposed. In Unger's inkwell scenario, we are not judging between two propositions about the 'metaphysical' nature of the inkwell in any deep-sense – i.e., whether or not reality really contains objects such as inkwells. All we are assuming is that, in regard to the question posed, that there are a number of things perceived as inkwells and a number of things perceived as chemical weapons, and that these objects can be distinguished from one another. Note that this is entirely compatible with such objects being 'unreal' in a certain sense, such as in Unger's 'scientist' scenario: the 'real world' might not have inkwells or anything like them, but still a person in such a simulation could distinguish a chemical weapon from an inkwell. By assuming the existence of inkwells to compare the two theories for any given inkwell, we need only assume that the things in the example scenario; such as inkwells, chemical weapons, and government agencies, refer to something in terms of the scenario.

The skeptic's question of the 'knowledge' of the mathematics involved may be approached in a similar fashion. The question under consideration is whether a given object is an inkwell or a chemical weapon. By assuming that there are such objects in the scenario, and that they may be distinguished, we may assume that there are countable instances and that there is some probability that a given object is an inkwell or a chemical weapon. Note that this only refers to the scenario in question: a 'real world' might exist such that mathematics and probability are not valid. However, there is no reason in terms of inkwells and chemical weapons to doubt the quantitative analysis.

Finally, Unger would call into question whether or not the probability counts as a knowledge claim. If proposed the question "Is this object before me an inkwell or a chemical weapon?", the answer, "The probability of it being a chemical weapon as opposed to an inkwell is 1 to 6 trillion against," doesn't seem to grant us any certainty. Neither case would violate the probability: I am still uncertain as to whether the object is actually an inkwell. I will grant this to the skeptic but say that, given the assumed existence of inkwells and chemical weapons in the scenario, we can know the probability. That is to say, our knowledge of the uncertain state of the inkwell is known with certainty given the scenario as presented.

The Strange Voice

Unger's example of the "voice" represents a stronger skeptical proposition: a case where one experiences a voice which seems to indicate a great number of facts about the world as he has seen it, a number of completely accurate predictions about

outlandish future events, and the information that the "world" being experienced in the example is an illusion and that even the voice he is hearing is a product of that illusion.[5] Note that even within his skeptical example, this voice is using Bayes' theorem: bringing up a number of examples that bring past events into question (marking them as potential false positives) and bringing weight to the skeptical scenario (providing examples of disconfirming evidence) to make its point. So at least within the scenario the voice is attempting to use Bayes' theorem as a persuasive tool, albeit informally.

For us to evaluate a model such as this under Bayes' Theorem, we must provide a solid question regarding the models involved: the skeptical model and the non-skeptical model, and see which one predicts the above scenario with better accuracy. In this way, we may evaluate the models in terms of what we should believe, given a specific experience. The skeptical model suggests that one is individually chosen, either as the only real person in the world or as one of many real persons in the world, to experience the voice and the events that follow to prove to this person that the world is false. The non-skeptical model would suggest that experiences of the above nature would be due to some sort of delusion or psychosis.[6] To produce a question that would distinguish these scenarios, I will suggest the following: How likely is this event for a given person in either model? The model where it is more likely would seem to explain the event better.

So how likely is each? Finding the probability for the skeptical scenario is, in this sense, rather easy. There are over 6.77 billion humans on the planet at the time of this writing. For simplicity's sake, I will assume that only human beings are under consideration. The likelihood of a specific individual having this experience, given that it is happening to only one person, is then a little less than 1 to 6.77 billion, or 1.47x10^-10, assuming that the scientists choose to share the real nature of the world with this person. If the scientists do not choose to do so, then the probability of a given person experiencing this will, of course, be zero.

In the *Journal of Nervous and Mental Disease*, Eaton and colleagues found that bizarre delusions were reported by as much as 2% of the general population.[7] Moreover, Dutch NEMESIS study found that only 12% of those who self-reported delusions were

[5] Unger, 125

[6] Unger, in fact, admits this to be what one might assume on page 126. Thus, I will assume it to be the counterfactual model that he would deny.

[7] Eaton WW, Romanoski A, Anthony JC, and Nestadt G. "Screening for psychosis in the general population with a self-report interview." (Journal of Nervous and Mental Disease.: Nov. 1991; Vol. 179: Issue 11) 690-91.

diagnosable as having a delusional disorder.[8] So if one were to experience Unger's scenario and was not diagnosed with a condition that produced delusions, we would assign the event a probability of 1.76%. The question then becomes, are these delusions independent or dependent: that is to say, how likely is it that a person who experiences one delusion will experience another, related delusion. If we assume them to be completely dependent, we would keep the probability at 1.76%, but if independent we find a probability of 9.59*10^-8. So the odds of a given person experiencing a scenario like Unger's, according to our psychological model, is between 1.76*10^-2 and 9.59*10^-8. So we find that even at its least probable point, it is an order of magnitude more likely that a person experiencing Unger's scenarios is experiencing a delusion rather than having a unique, skeptical experience.

Objections to Comparative Analysis

As with the inkwell, Unger would doubt this analysis as producing a knowledge claim. He would question the probability given for the 'voice,' and would also say that the whole scenario is not subject to quantitative analysis because, unlike the inkwell example above, the 'voice' specifically calls into question basic truths about the world, such as the use of mathematics and statistics in order to find truth.

When I asserted the probability of a given person experiencing the skeptical scenario, I assumed that it was no more likely to happen to one person than another. It is on this last point that Unger could take exception to: if the whole of the world is being called into question, the number of 'real people' might not be 6.77 billion. There might be only one person, there might be ten, there might be a million. As such, there might be a way to privilege certain observers in a way that would change the probability and we cannot know what probability we ought to use. Thus, we cannot (even limiting the space to human persons) specify a given probability for comparative analysis. But this is a false dilemma. If we are talking about the space of human beings, the space of human persons is subsumed by it and proportional to it within the 'false world.' This will be true regardless of what proportion of humans are 'persons' and so the probability for a given human being doesn't change. We might assert that our own subjective experience is to be given a higher probability of making us 'real persons' but it is trivially true that Unger cannot assume this premise without further assuming that there is something real about subjective experience that makes it 'real' – a knowledge claim that he cannot make. In other words, it might be such that 'non-real persons' also have subjective experience, and as Unger cannot claim to know, he cannot prioritize any human in his example over any other.

[8] This figure was gained by taking the number that reported delusions (2%) and subtracting out the proportion that would be diagnosable (12%).

But Unger can, unlike the inkwell scenario, call into question the possibility of the quantitative analysis being wrong. Even if the 'voice' uses Bayesian reasoning to convince us, it is also a product of the illusion and may merely be demonstrating a truth to us in a way that would allow us to understand it in our current state. As such, there is no reason to assume that this analysis pertains in the 'real world' of the scenario. I will grant the skeptic this, but note that our example 'person' is not in the 'real world' according to the skeptical version of this scenario. Instead he is in the world that may or may not be real and is in the unenviable position of having to judge whether or not he believes the voice to be legitimate or a delusion. Given the best information available to him, prior to being actually 'taken away' from the illusory world, quantitative comparisons still work as a better tool for understanding whether or not he should believe the voice over his past experiences, as he lacks access to whatever tools of knowledge might be available to him in any other world.

Uncertain Worlds

We might then ask about specific uncertain worlds, such as Unger begins *Ignorance* with. We might, for instance, imagine that we are waking up to electrodes being removed from our head, and having it explained to us that everything we have experienced up to this point has been an illusion. As an aside, we might be told that rocks don't exist in this new world. Perhaps we might speculate that quantitative analysis would also not prove true here, as would the existence of rocks.[9]

Here I will concede to the skeptic that the scenario is beyond quantitative analysis. This is because the scenario cannot be expressed in terms of contrary models in any evidentiary fashion that would make a given scenario less probable- unlike the inkwell or the voice. To see why this is so, we might imagine 4 nearby possible worlds. In world A, a person experiences this scenario just as it is outlined by Unger. In world B, a person experiences the same thing, but unknown to them, they were in the 'real world' *prior* to waking up in the lab, and it is the lab that is the simulation. In world C, the same thing is again experienced, but both worlds are merely simulations taking place in another world. In world D, the same experience again happens, but is merely the result of a drug-induced hallucination. We might further speculate to other worlds, both skeptical and not, to consider. But for people finding themselves in such a scenario, there is no way for them to distinguish between these worlds: one could just as easily be false as another.

[9] Unger, 9-10

Conclusion

It has been shown that, in cases that occur in or are under consideration in the world as it is perceived, quantitative analysis of skeptical scenarios provides us with knowledge claims that can be understood in terms of the scenario as presented. Further, it has been shown that this quantitative analysis avoids the skeptical critique of dogmatism by actively updating on evidence based on new information as it occurs. This technique is limited: the probabilities it provides cannot be taken to be 'certainties' but are useful for picking out the more likely scenario where applicable and minimally allowing us to make a knowledge claim regarding our uncertainty in a given scenario. This analysis is limited to this world or others where the rules of quantitative analysis apply: once the 'experience' of other worlds is assumed, quantitative analysis loses its ability to function as a tool. As such, quantitative analysis cannot and does not challenge the skeptic's main point about whether or not knowledge is possible, as it is premised in there being a world such that mathematical knowledge is viable. But in scenarios that call our colloquial concepts of 'knowing' into question, quantitative analysis acts as a better tool for understanding skeptical scenarios than the skeptical model itself. This shows that for these sorts of skeptical scenarios one can better rely on quantitative analysis than a blanket dismissal of the possibility of knowledge.

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